AMENDMENTS TO CLAIMS

1. (original) An optimization method for power generation cost;

the method assuming the mixture rate of alternative fuel and calculating the fuel cost for achieving a target power generation output based on, at least, the fossil fuel price, alternative fuel price, electric power price, and CO_2 emission rights price for trading;

calculating the fuel cost in the case of using fossil fuel only; and

determining the ratio of mixture of the alternative fuel at which the fuel cost in the case of mixing the alternative fuel is lower than the fuel cost in the case of using the fossil fuel only.

2. (original) The optimization method for power generation cost as set forth in Claim 1, wherein the procedure of assuming the mixture rate of the alternative fuel and calculating the fuel cost:

forms the zero-order synthesis fuel invest plan that specifies the initial mixture rate of the fossil fuel and alternative fuel;

calculates the fuel cost based on the fossil fuel price, alternative fuel price, electric power price, and CO_2 emission rights price for trading;

judges whether the result of the fuel cost calculation has reached the optimum cost; and,

if not yet reached, modifies the nth-order synthesis fuel invest plan and forms the (n+1)th-order synthesis fuel invest plan; and

re-inputs the plan into the calculating procedure; and,

if the result has reached the optimum cost, outputs an operating plan meeting the fuel cost.

3. (currently amended) The optimization method for power generation cost as set forth in Claim 1 or 2, wherein the procedure of assuming the mixture rate of the alternative fuel and calculating the fuel cost calculates;

in the case of CO_2 emission rights purchase,

Fuel cost   =   Alternative fuel consumption × Unit for alternative fuel +
Fossil fuel consumption × Unit for fossil fuel +
Emission rights trading displacement × Unit for emission rights trading; and

in the case of CO_2 emission rights sale,

Fuel cost   =   Alternative fuel consumption × Unit for alternative fuel +
Fossil fuel consumption ×
Unit for fossil fuel - Emission rights trading displacement × Unit for emission rights trading.

4. (original) An optimization system for power generation cost, comprising:

a fuel price database for storing, at least, the fossil fuel price, alternative fuel price, electric power price, and CO_2 emission rights price for trading;

planning means for forming the zero-order synthesis fuel invest plan that specifies the initial mixture rate of the fossil fuel and alternative fuel;

calculating means for calculating the fuel cost based on the prices such as fuel prices in the database; and

evaluation method for judging whether the result of the fuel cost calculation has reached the optimum cost, and, if not yet reached, modifying the nth-order synthesis fuel invest plan, forming the (n+1)th-order synthesis fuel invest plan, and re-inputting the plan into the calculating means, and if the result has reached the optimum cost, outputting an operating plan meeting the fuel cost.

5. (currently amended) The optimization system for power generation cost as set forth in Claim 4, wherein

the calculating means includes a means for calculating;

in the case of CO_2 emission rights purchase,

Fuel cost = Alternative fuel consumption × Unit for alternative fuel
+ Fossil fuel consumption × Unit for fossil fuel
+ Emission rights trading displacement × Unit for emission rights trading; and

in the case of CO_2 emission rights sale,

Fuel cost = Alternative fuel consumption × Unit for alternative fuel
+ Fossil fuel consumption × Unit for fossil fuel
- Emission rights trading displacement × Unit for emission rights trading.

6. (currently amended) The optimization system for power generation cost as set forth in Claim 4 or 5, wherein

the calculating means includes a means for calculating, using, as A1, a variable that bases on the change in the efficiency of a power generation plant resulting from the invest of alternative fuel,

Fuel consumption = A1 × Alternative fuel consumption + Fossil fuel consumption.

7. (currently amended) The optimization system for power generation cost as set forth in ~~any one of Claims 4 to~~ <u>Claim</u> 6, wherein

the calculating means includes a means for calculating, using, as the basic fuel consumption, the fossil fuel consumption in the case the fuel consumption comprises 100% fossil fuel, and, as K2, a proportional constant that depends upon the special characteristic of a plant,

Basic emission amount = K2 × Basic fuel consumption;

calculating, using, as K3, a proportional constant that depends upon the special characteristic of a plant,

Hazardous substance emission amount reduction = K3 × Alternative fuel consumption; and

calculating

Hazardous substance actual emission amount = Basic emission amount - Emission amount reduction<u>.</u>

8. (currently amended) The optimization system for power generation cost as set forth in ~~any one of Claims 4 to~~ <u>Claim</u> 7, wherein

the calculating means includes a means for calculating,

using, as the emission rights share, the hazardous substance emission amount that is permitted under the distributed free-of-charge CO_2 emission rights, in the case of "actual emission amount > emission rights distribution share",

Emission rights purchase amount = (Actual emission amount - Emission rights distribution share); and, in the case of "actual emission amount ≤ emission rights share",

Emission rights purchase amount = 0.

9. (original) A support system for generating company, comprising a fuel supply company who sells fossil fuel and alternative fuel, transmission company who sells the electric power that is generated using the fossil fuel and alternative fuel, and fuel information management company, wherein

the fuel information management company owns an optimization system for power generation cost, comprising a fuel price database for storing, at least, the fossil fuel price, alternative fuel price, electric power price, and CO_2 emission rights price for trading, received from the fuel supply company, planning means for forming the zero-order synthesis fuel invest plan that specifies the initial mixture rate of the fossil fuel and alternative fuel, calculating means for calculating the fuel cost based on the prices such as fuel prices in the database; and evaluation method for judging whether the result of the fuel cost calculation has reached the optimum cost, and, if not yet reached, modifying the nth-order synthesis fuel invest plan, forming the (n+1)th-order synthesis fuel invest plan, and re-inputting the plan into the calculating means, and if the result has reached the optimum cost, outputting an operating plan meeting the fuel cost;

transfers the operating plan to the transmission company, and orders the alternative fuel from the fuel supply company in a volume necessary for the operation at the mixture rate;

the fuel supply company delivers the ordered alternative fuel to the transmission company; and

the transmission company generates electric power according to the transferred operating plan, and pays a merit charge for a fuel price curtailment, which is the fuel cost reduction multiplied by a pre-specified coefficient, to the fuel information management company.

10. (original) The support system for generating company as set forth in Claim 9, wherein the optimization system for power generation cost owned by the fuel information management company comprises a fuel price database for storing, at least, the fossil fuel price, alternative fuel price, electric power price, and CO_2 emission rights price for trading, planning means for forming the zero-order synthesis fuel invest plan that specifies the initial mixture rate of the fossil fuel and alternative fuel, calculating means for calculating the fuel cost based on the prices such as fuel prices in the database; and evaluation method for judging whether the result of the fuel cost calculation has reached the optimum cost, and, if not yet reached, modifying the nth-order synthesis fuel invest plan, forming the (n+1)th-order synthesis fuel invest plan, and re-inputting the plan into the calculating means, and if the result has reached the optimum cost, outputting an operating plan meeting the fuel cost.

11. (original) The support system for generating company as set forth in Claim 9 or 10, wherein

the optimization system for power generation cost includes a means for calculating, in the case of CO_2 emission rights purchase,

Fuel cost = Alternative fuel consumption × Unit for alternative fuel

+ Fossil fuel consumption × Unit for fossil fuel

+ Emission rights trading displacement × Unit for emission rights trading; and

calculating, in the case of CO_2 emission rights sale,

Fuel cost = Alternative fuel consumption × Unit for alternative fuel

+ Fossil fuel consumption × Unit for fossil fuel

- Emission rights trading displacement × Unit for emission rights trading.